

IN THE CLAIMS

1. (currently amended) A signal processing device for superimposing digital watermarking information on an audio signal, said device comprising:

psychological auditory sense analysis means for performing psychological auditory sense analysis based on a predetermined compression characteristic of said audio signal, and for outputting the result of the analysis as psychological auditory sense encoded information; and

superimposing means for superimposing on said audio signal first digital watermarking information and second digital watermarking information to create a marked audio signal, said first digital watermarking information and said second digital watermarking information being based on said psychological auditory sense encoded information and on at least one range of amplitudes within which a frequency representation of said audio signal is sampled during compression processing such that said first digital watermarking information is sampled during compression processing and said second digital watermarking information is not sampled during compression processing, and being characterized in that, upon compression of said marked signal to create a compressed signal, said first digital watermarking information can be completely or substantially recovered from said compressed signal and said second digital watermarking information cannot be completely or substantially recovered from said compressed signal;

wherein said psychological auditory sense encoded information is indicative of the respective frequency bands of said audio signal on which said first and second digital watermarking information are to be superimposed, and the respective levels to which the first and second digital watermarking information should be set prior to superimposition.

2. (previously presented) The signal processing device according to claim 1, wherein said psychological auditory sense analysis means generates said psychological auditory sense encoded information based on a predetermined minimum level of audio signal that can be detected by the auditory sense of a human being.

3. (previously presented) The signal processing device according to claim 1, wherein said psychological auditory sense analysis means generates said psychological auditory sense encoded information, on the basis of a masking effect of the audio signal.

4. (canceled)

5. (previously presented) The signal processing device according to claim 1, wherein said digital watermarking information includes copyright information relevant to said audio signal.

6. (currently amended) A signal processing method of superimposing digital watermarking information on an audio signal, said method, comprising the steps of:

performing psychological auditory sense analysis based on a predetermined compression characteristic of said audio signal, and then outputting the result of the analysis as psychological auditory sense encoded information; and

superimposing on said audio signal first digital watermarking information and second digital watermarking information to create a marked audio signal, said first digital watermarking information and said second digital watermarking information being based on said psychological auditory sense encoded information and on at least one range of amplitudes within which a frequency representation of said audio signal is sampled during compression processing such that said first digital watermarking information is sampled during compression

processing and said second digital watermarking information is not sampled during compression processing, and being characterized in that, upon compression of said marked signal to create a compressed signal, said first digital watermarking information can be completely or substantially recovered from said compressed signal and said second digital watermarking information cannot be completely or substantially recovered from said compressed signal;

wherein said psychological auditory sense encoded information is indicative of the respective frequency bands of said audio signal on which said first and second digital watermarking information are to be superimposed, and the respective levels to which the first and second digital watermarking information should be set prior to superimposition.

7. (previously presented) The signal processing method according to claim 6, wherein at said step of performing psychological auditory sense analysis, said psychological auditory sense encoded information is generated based on a predetermined minimum level of audio signal that can be detected by the auditory sense of a human being.

8. (previously presented) The signal processing method according to claim 6, wherein at said step of performing psychological auditory sense analysis, said psychological auditory sense encoded information is generated, on the basis of a masking effect of the audio signal.

9. (canceled)

10. (previously presented) The signal processing method according to claim 6, wherein said digital watermarking information includes copyright information relevant to said audio signal.

11. (currently amended) A storage medium comprising program code for directing a signal processing device to perform the steps of:

performing psychological auditory sense analysis based on a predetermined compression characteristic of an audio signal and then outputting the result of the analysis as psychological auditory sense encoded information; and

superimposing on said audio signal first digital watermarking information and second digital watermarking information to create a marked audio signal, said first digital watermarking information and said second digital watermarking information being based on said psychological auditory sense encoded information and on at least one range of amplitudes within which a frequency representation of said audio signal is sampled during compression processing such that said first digital watermarking information is sampled during compression processing and said second digital watermarking information is not sampled during compression processing, and being characterized in that, upon compression of said marked signal to create a compressed signal, said first digital watermarking information can be completely or substantially recovered from said compressed signal and said second digital watermarking information cannot be completely or substantially recovered from said compressed signal;

wherein said psychological auditory sense encoded information is indicative of the respective frequency bands of said audio signal on which said first and second digital watermarking information are to be superimposed, and the respective levels to which the first and second digital watermarking information should be set prior to superimposition.

12. (previously presented) The program storing medium according to claim 11, wherein at said step of performing psychological auditory sense analysis, said psychological auditory sense encoded information is generated based on a predetermined minimum level of audio signal that can be detected by the auditory sense of a human being.

13. (previously presented) The program storing medium according to claim 11, wherein at said step of performing psychological auditory sense analysis, said psychological auditory sense encoded information is generated, on the basis of a masking effect of the audio signal.

14. (canceled).

15. (previously presented) The program storing medium according to claim 11, wherein said digital watermarking information includes copyright information relevant to said audio signal.